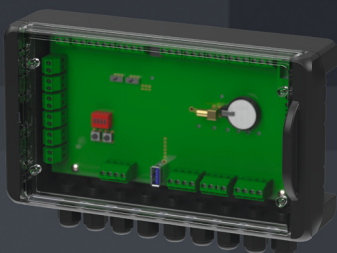


# ASO - Safety, Sensors & Controls

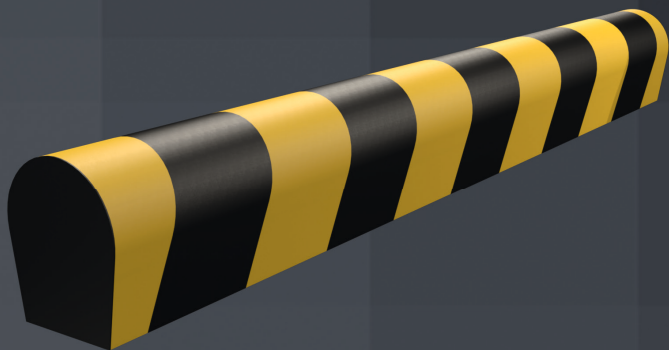
## ELMON relay

The **ELMON relay** from ASO provides permanent monitoring of contact edges, mats and bumpers. It acts as a link between tactile sensors and the system vehicle control.



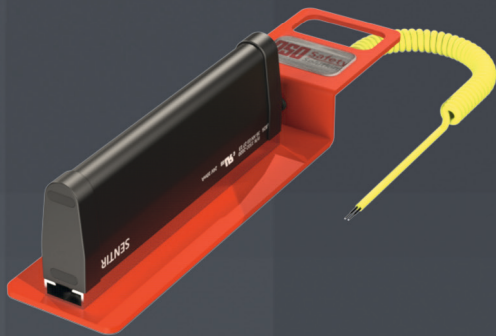
## SENTIR bumper

The **SENTIR bumper** offers adaptability, reliability and versatility. It is designed to protect AGV's and forklift trucks, high-bay storage systems, machine lines, free-floating systems and aircrafts with its rapid switching characteristics and to withstand extreme environmental conditions.



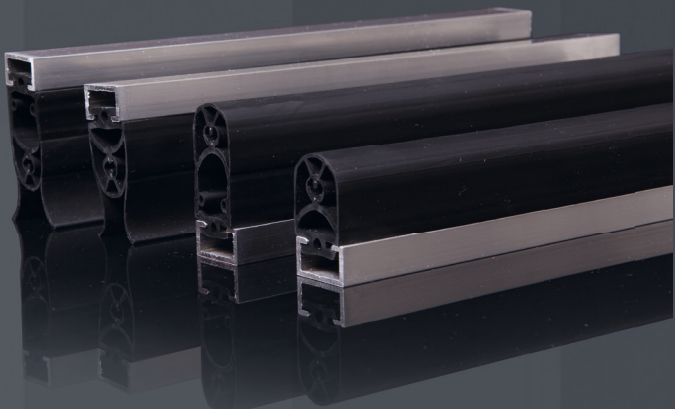
## SENTIR safety foot

The SENTIR safety foot was developed specifically for the GSE market. It is a pressure sensitive sensor which is placed below the aircraft door in order to detect and report the lowering of the aircraft during loading.



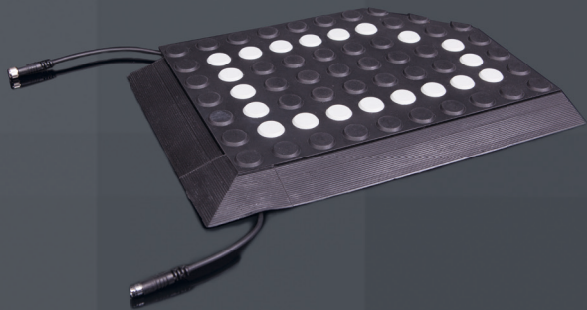
## SENTIR edge

Crushing and shearing points on automated equipment and vehicles have a high risk potential for people and material. The **SENTIR edge** provides reliable protection. The pressure-sensitive sensor acts as closing edge safety device and guarantees optimum overtravel and fast switching characteristics.



## SENTIR mat

Equipped with a structural surface and laminated section sensors, the **SENTIR mat** protects and detects. Easily integrated into any environment to protect from danger or injury.

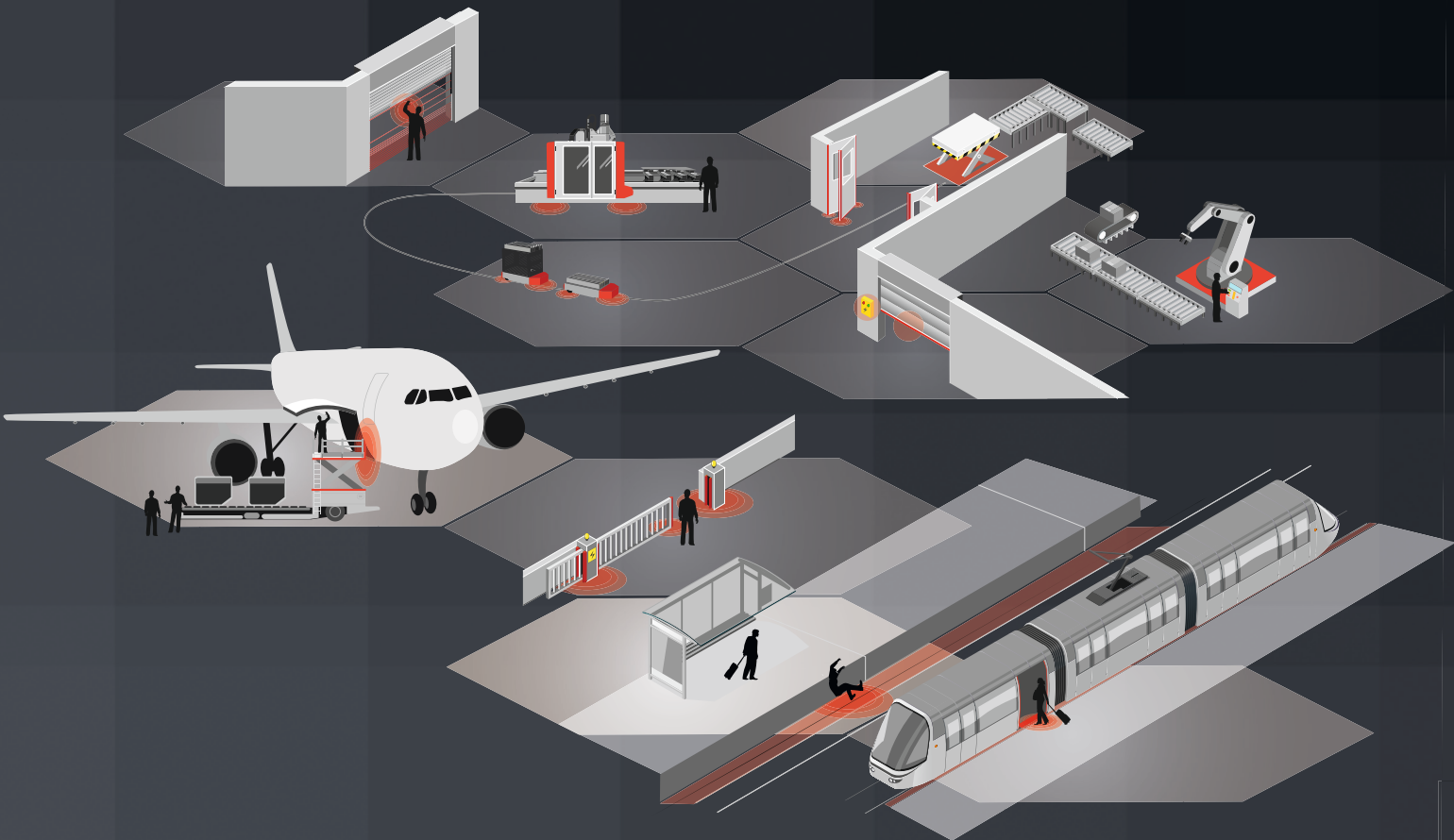


## ASO Safety Solutions – At the Cutting Edge

ASO Safety Solutions has been established for almost 40 years and is today the world market leader for tactile sensor technology.

Regular exchanges and feedback from customers has enabled the company to align production and sales with real customer requirements. Investment in research and development has allowed ASO to meet growing requirements in industry and society. ASO Safety Solutions pride themselves on innovative thinking and dynamic development processes that make them an industry success.

ASO addresses the major challenges of globalisation by concentrating on core competences, by carefully adapting its operating structures and systematically expanding its international presence. Today, there are 200 employees worldwide, who manufacture safety sensors, controls and customer-specific safety solutions. In addition to the company headquarters in Germany, the USA and China, sales offices all over Europe and a worldwide dealer network are responsible for worldwide sales.



# Safety for Aviation Technology



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Information for Aviation Technology





## Ground Support Equipment

ASO developed a collision avoidance system as retrofit solution for all kinds of GSE. The modular component system consists of pressure-sensitive and proximity sensors and thus complies with current IATA requirements.

Pressure sensitive safety devices for Aviation Ground Support Equipment detect any impacts as a vehicle approaches an aircraft and immediately a signal can be triggered by the vehicle control. The safety device also absorbs the momentum of the vehicle itself.

The ASO **SENTIR bumper** is designed to protect an aircraft with its rapid switching behavior and to withstand extreme environmental conditions it is exposed to at the airport. In combination with a proximity sensor (e.g. P+F ultrasonic sensor), maximum safety is achieved.



## Maintenance Technology

Automated moving maintenance docking platforms, stands and scissor lifts need to be equipped with safety devices as well, just like Ground Support Equipment. **SENTIR bumper** safety contact bumpers and **SENTIR edge** safety contact edges ensure a safe approach to the aircraft.

ASO's pressure sensitive safety devices are ideally suited to protect and shield an aircraft from damage. After an impact to the soft surface area of an active safety contact edge or bumper, an electrical stop and possible reverse of the machine is triggered. The resulting overtravel distance of the **SENTIR** safety edge or bumper cushions

the momentum of the machine and thus prevents damage to the aircraft. Our **ELMON safety** relay acts as an interface of all components, for both tactile and proximity sensors. ASO's **SENTIR mat** safety contact mats enable presence detection for lifting devices and other vehicles.



### ELMON relay

- Acts as a reliable link between the signal transmitter and the control unit
- Different versions, depending on system requirements
- Logbook function
- Optional GPS antenna
- Connection option for tactile sensors and proximity sensors
- Connection option for acoustic and optical warning signals



### SENTIR bumper

- Robust design: flexible and durable synthetic leather
- Insensitive to vibrations
- Resistant to oils, avgas, many chemicals and other substances
- Customisable in shape, size, colour and cover material
- Custom mounting and connection options
- Rating up to IP 67



### ULTRASONIC SENSOR

- Sensor head can be repositioned and rotated
- All-round visible function display
- Quick mounting fastener
- Width of ultrasonic lobe selectable
- Parameterizable
- IP 67



### SENTIR safety foot

- Minimal activation distance
- High durability
- Maintenance - free
- Customizable
- Optional mount
- Easy to handle
- On request: incl. detection of safety foot



### SENTIR edge

- Patented double chamber system for high durability
- Minimal activation distance
- Rating up to IP 68
- Extensive customisation options due to in-house production
- Largest portfolio of active safety contact edges



### SENTIR mat

- Maintenance-free system, easy to clean from dust and dirt
- High moisture resistance (up to IP 67)
- More than 6 million switching cycles
- Standard dimensions, custom shapes and colors available
- Tamper proof